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SEQUENCE LISTING

<110> Mitchell, Lloyd G.
Garcia-Blanco, Mariano A.
Puttaraju, Madaiah
Mansfield, Gary S.

<120> METHODS AND COMPOSITIONS FOR USE IN
SPLICEOSOME MEDIATED RNA TRANS-SPLICING IN PLANTS

<130> A31304-B-A-C 072874.0138

<140> 09/756,097

<141> 2001-01-08

<150> 09/158,863

<151> 1998-09-23

<150> 09/133,717

<151> 1998-08-13

<150> 09/087,233

<151> 1998-05-28

<150> 08/766,354

<151> 1996-12-13

<150> 60/008,317

<151> 1995-12-15

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29

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<213> Corynebacterium diphtheriae

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51

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<210> 17
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<400> 17
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16

<210> 18
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<400> 18
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29

<210> 20
<211> 36
<212> DNA
<213> Corynebacterium diptheriae

<400> 20
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36

<210> 21
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<212> DNA
<213> *Corynebacterium diphtheriae*

<400> 21
catcgtcata atttccttgt g
21

<210> 22
<211> 20
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<213> *Corynebacterium diphtheriae*

<400> 22
atggaatcta cataaccagg
20

<210> 23
<211> 20
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<213> *Corynebacterium diphtheriae*

<400> 23
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20

<210> 24
<211> 20
<212> DNA
<213> *Homo sapien*

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<210> 25
<211> 30
<212> DNA
<213> *Homo sapien*

<400> 25
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30

<210> 26

<211> 20
<212> DNA
<213> Homo sapien

<400> 26
gggcaaggtg aacgtggatg
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<210> 27
<211> 19
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<213> Homo sapien

<400> 27
atcaggagtg gacagatcc
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Escherichia coli lacZ gene

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<210> 29
<211> 36
<212> DNA
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<220>
<223> Oligonucleotide primer complimentary to the
Escherichia coli lacZ gene

<400> 29
ctgaggatcc tcttacctgt aaacgcccac actgac
36

<210> 30
<211> 38
<212> DNA
<213> Artificial Sequence

<220>

<223> Oligonucleotide primer complimentary to the
Escherichia coli lacZ gene

<400> 30

gcatggtaac cctgcagggc ggcttcgtct gggactgg
38

<210> 31

<211> 38

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide primer complimentary to the
Escherichia coli lacZ gene

<400> 31

ctgaaagctt gttaacttat tatttttgac accagacc
38

<210> 32

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide primer complimentary to the
Escherichia coli lacZ gene

<400> 32

gcatggtaac cctgcagggc ggcttcgtct aataatggga ctgggtg
47

<210> 33

<211> 37

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide primer complimentary to the beta
HCG6 gene (accession #X00266)

<400> 33

gcatggatcc tccggagggc ccctgggcac cttccac
37

<210> 34

<211> 38
<212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide primer complimentary to the beta
HCG6 gene (accession #X00266)

<400> 34
ctgactgcag ggtaaccgga caaggacact gcttcacc
38

<210> 35
<211> 35
<212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide primer complimentary to the beta
HCG6 gene (accession #X00266)

<400> 35
gcatggtaac cctgcagggg ctgctgctgt tgctg
35

<210> 36
<211> 37
<212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide primer complimentary to the beta
HCG6 gene (accession #X00266)

<400> 36
ctgaaagctt gttaaccagc tcaccatggt ggggcag
37

<210> 37
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide primer complimentary to the
Escherichia coli lacZ gene

<400> 37

ggctttcgct acctggagag ac
22

<210> 38
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide primer complimentary to the
Escherichia coli lacZ gene

<400> 38
gctggatgcg gcgtgcggtc g
21

<210> 39
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide primer complimentary to the
Escherichia coli lacZ gene

<400> 39
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<210> 40
<211> 45
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<400> 40
acctggggcc acccattatt aggtcattat ccgcggaaca ttata
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<210> 41
<211> 35
<212> DNA
<213> Homo sapiens

<400> 41
acctctgcag gtgaccctgc aggaaaaaaaa agaag
35

<210> 42

<211> 30
<212> DNA
<213> Homo sapiens

<400> 42
acctctgcag acttcacttc taatgatgat
30

<210> 43
<211> 51
<212> DNA
<213> Homo sapien

<400> 43
acctgcggcc gcctaatagat gatgatgatg atgctcttct agttggcatg c
51

<210> 44
<211> 32
<212> DNA
<213> Homo sapien

<400> 44
gacctctcga gggatttggg gaattatttg ag
32

<210> 45
<211> 35
<212> DNA
<213> Homo sapien

<400> 45
ctgacctgcg gccgctacag tggttgaaatgt ggtgc
35

<210> 46
<211> 35
<212> DNA
<213> Homo sapien

<400> 46
ctgacctgcg gccgccaac tatctgaatc atgtg
35

<210> 47
<211> 32
<212> DNA
<213> Homo sapien

<400> 47
gacctcttaa gtagactaac cgattgaata tg
32

<210> 48
<211> 21
<212> DNA
<213> Homo sapien

<400> 48
ctaatgatga tgatgatgat g
21

<210> 49
<211> 21
<212> DNA
<213> Homo sapien

<400> 49
cgcctaata tgatgatgat g
21

<210> 50
<211> 21
<212> DNA
<213> Homo sapien

<400> 50
cttcttggtta ctctgtcct g
21

<210> 51
<211> 32
<212> DNA
<213> Homo sapien

<400> 51
gacctctcga gggatttggg gaattatttg ag
32

<210> 52
<211> 21
<212> DNA
<213> Homo sapien

<400> 52
aactagaagg cacagtcgag g

21

<210> 53
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> trans-spliced product containing Human chorionic gonadotropin gene 6 sequences and Corynebacterium diphtheriae diphtheria toxin A sequence

<400> 53
gagatgttcc agggcgtgat gatg
24

<210> 54
<211> 127
<212> RNA
<213> Artificial Sequence

<220>
<223> PTM intramolecular base paired stem

<221> misc_feature
<222> (57)...(70)
<223> Loop comprising a combination of 14 nucleotides according to specification

<400> 54
gcuagccugg gacaaggaca cugcuucacc cgguuaguag accacagccc ugagccnnnn
60
nnnnnnnnnn aucguuaacu aaauaacuac uaacuggggug aacuucuguu uuuuucucga
120
gcugcag
127

<210> 55
<211> 127
<212> RNA
<213> Artificial Sequence

<220>
<223> PTM intramolecular base paired stem

<221> misc_feature
<222> (57)...(70)
<223> Loop comprising a combination of 14 nucleotides

according to specification

<400> 55

gcuagccugg gacaaggaca cugcuucacc cgguuaguag accacagccc ugagccnnnn
60
nnnnnnnnnn aucguuaacu aaauaacuac uaacuggggug aacuucugua uuauucucga
120
gcugcag
127

<210> 56

<211> 127

<212> RNA

<213> Artificial Sequence

<220>

<223> PTM intramolecular base paired stem

<221> misc_feature

<222> (57)...(70)

<223> Loop comprising a combination of 14 nucleotides
according to specification

<400> 56

gcuagccugg gacaaggaca cugcuucacc cgguuaguag accacagccc ugagccnnnn
60
nnnnnnnnnn aucguuaacu aaauaacuac uaacuggggug aaguucuguc cuugucucga
120
gcugcag
127

<210> 57

<211> 132

<212> DNA

<213> Artificial Sequence

<220>

<223> trans-spliced product containing Human chorionic
gonadotropin gene 6 sequences and Corynebacterium
diphtheriae diphtheria toxin A sequences

<400> 57

caggggacgc accaaggatg gagatgttcc agggcgctga tgatgttggtt gattcttctt
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aatcttttg tgatggaaaa cttttcttcg taccacggga ctaaacctgg ttatgtagat
120
tccattcaaa aa
132

<210> 58
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Artificial Sequence derived from Escherichia coli
lacZ gene

<400> 58
gaattcggta ccatgggg
18

<210> 59
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> Artificial Sequence derived from Escherichia coli
lacZ gene

<400> 59
cgtttacagg taagaggatc ctccggaggg ccc
33

<210> 60
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Artificial Sequence derived from Escherichia coli
lacZ gene

<400> 60
tgggtgtcaaa aataataagt taacaagctt
30

<210> 61
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> trans-spliced product containing Escherichia coli
lacZ gene sequences and Human chorionic

gonadotropin gene 6 exon 2 sequences

<400> 61

cagcagcccc tgtaaacggg gatac
25

<210> 62

<211> 286

<212> DNA

<213> Artificial Sequence

<220>

<223> trans-spliced product containing Escherichia coli
lacZ gene sequences

<400> 62

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120
agggcggctt cgtctaataa tgggactggg tggatcagtc gctgattaaa tatgatgaaa
180
acgggcaacc cgtggtcggc ttacggcggg gattttggcg atacgccgaa cgatcgccag
240
ttctgtatga acgggtctggc ctttgccgac cgcacgcccgc atccag
286

<210> 63

<211> 196

<212> DNA

<213> Artificial Sequence

<220>

<223> trans-spliced product containing Escherichia coli
lacZ gene sequences

<400> 63

ggctttcgct acctggagag acgcgcccgc tgatcctttg cgaatacgcc cacgcgatgg
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gtaacagtct tggcgggtttc gctaaatact ggcaggcggt tcgtcagtat ccccgtttac
120
aggggctgct gctgttgctg ctgctgagca tgggcgggac atgggcatcc aaggagccac
180
ttcggccacg gtgccg
196

<210> 64

<211> 420

<212> DNA
<213> Artificial Sequence

<220>

<223> trans-spliced product comprising cystic fibrosis
transmembrane regulator-derived sequences and His
tag sequence

<400> 64

gctagcgttt aaacgggccg acccatcatt attaggtcat tatccgcgga acattattat
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aacgttgctc gagtactaac tggaacctct tctttttttt cctgcagact tcacttctaa
120
tgatgattat gggagaactg gagccttcag agggtaaaat taagcacagt ggaagaattt
180
cattctgttc tcagttttcc tggattatgc ctggcaccat taaagaaaat atcatctttg
240
gcggccgcca ctgtgctgga tatctgcaga attccaccac actggactag tggatccgag
300
ctcggtacca aggttaagtt taaaccgctg atcagcctcg actgtgcctt ctagttgcca
360
gccatctgtt gtttgcccct cccccgtgcc ttccttgacc ctggaaggtg ccactcccac
420

<210> 65

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Splice junction sequence

<400> 65

atgttccagg gcgtgatgat
20

<210> 66

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> C terminal residues from glutathione -S-
transferase

<400> 66

Asp Tyr Lys Asp Asp Asp Lys

1

5

<210> 67

<211> 15

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificial sequence comprising sequences derived
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<400> 67

ggagttgatc ccgtc

15

<210> 68

<211> 37

<212> DNA

<213> Artificial Sequence

<220>

<223> Artificial sequence comprising sequences derived
from Escherichia coli lacZ gene

<400> 68

gcagtgtcct tgtgcggtta ccctgcaggg cggcttc

37

<210> 69

<211> 120

<212> DNA

<213> Artificial Sequence

<220>

<223> Binding domain of PTM

<400> 69

gattcacttg ctccaattat catcctaagc agaagtgtat attcttattt gtaaagattc

60

tattaactca tttgattcaa aatattttaa atacttcctg tttcatactc tgctatgcac

120

<210> 70

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Spacer sequence of PTM

<400> 70

aacattatta taacgttgct cgaa

24

<210> 71

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Branch point, pyrimidine tract and acceptor splice
site of PTM

<400> 71

tactaactgg tacctcttct tttttttttg atatcctgca gggcggc

47

<210> 72

<211> 70

<212> DNA

<213> Artificial Sequence

<220>

<223> Donor site and spacer sequence of PTM

<400> 72

tgaacggtaa gtgttatcac cgatatgtgt ctaacctgat tcgggccttc gatacgctaa

60

gatccaccgg

70

<210> 73

<211> 260

<212> DNA

<213> Artificial Sequence

<220>

<223> Binding domain of spacer sequence

<400> 73

tcaaaaagtt ttcacataat ttcttacctc ttcttgaatt catgctttga tgacgcttct

60

gtatctatat tcatcattgg aaacaccaat gatttttctt taatggtgcc tggcataatc

120

ctggaaaact gataacacaa tgaaattctt ccactgtgct taaaaaaacc ctcttgaatt
180
ctccatttct ccataatca tcattacaac tgaactctgg aaataaaaacc catcattatt
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aactcattat caaatcacgc
260

<210> 74
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide primer

<400> 74
cgctggaaaa acgagcttgt tg
22

<210> 75
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide

<400> 75
actcagtgtg attccacctt ctc
23

<210> 76
<211> 36
<212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide

<400> 76
gacctctgca gacttcactt ctaatgatga ttatgg
36

<210> 77
<211> 33
<212> DNA
<213> Artificial Sequence

<220>

<223> Oligonucleotide primer

<400> 77

ctaggatccc gttcttttgt tcttcactat taa
33

<210> 78

<211> 33

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide primer

<400> 78

ctagggttac cgaagtaaaa ccatacttat tag
33

<210> 79

<211> 35

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide primer

<400> 79

gcatggttac cctgcagggg ctgctgctgt tgctg
35

<210> 80

<211> 37

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide primer

<400> 80

ctgaaagctt gttaaccagc tcaccatggt ggggcag
37

<210> 81

<211> 23

<212> DNA

<213> Artificial Sequence

<220>
<223> Binding domain of PTM molecule

<400> 81
acccatcatt attaggtcat tat
23

<210> 82
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide primer

<400> 82
gatcaaattct gtcgatacctt cc
22

<210> 83
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide primer

<400> 83
ctgatccacc cagtcccatt a
21

<210> 84
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide primer

<400> 84
gactgatcca cccagtccca ga
22

<210> 85
<211> 52
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<223> Random sequence inserted to replace 3' splice site

<221> misc_feature

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<223> spacer sequence, see SEQ ID NO 70

<400> 85

ccgcggnnnn nnnnnnnnnn nnnnnnnnnn gggttccggt accggcggct tc
52

<210> 86

<211> 71

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide

<400> 86

ttttatcccc gtttacaggg cggcttcgctc tgggactggg tggatcagtc gctgattaaa
60
tatgatgaaa a
71

<210> 87

<211> 66

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide

<400> 87

tttggcgata cgccgaacga tcgccagttc tgtatgaacg gtctgggtctt tgccgaccgc
60
acgccg
66

<210> 88

<211> 192

<212> DNA

<213> Artificial Sequence

<220>

<223> PTM sequences

<400> 88

acgagcttgc tcatgatgat catgggagag ttagaaccaa gtgaaggcaa gatcaaacat
60
tccggccgca tcagcttttg cagccaattc agttggatca tgcccgggtac catcaaggag
120
aacataatct tcggcgtcag ttacgacgag taccgctatc gtcggtgat taaggcctgt
180
cagttggagg ag
192

<210> 89
<211> 25
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<223> Oligonucleotide

<400> 89
gagcaggcaa gacgagcttg ctcat
25

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<220>
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<400> 90
gagaacataa tcttcggcgt cagttacg
28

<210> 91
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<220>
<223> Oligonucleotide

<400> 91
gtcagttgga ggaggacatc tccaagtttg
30

<210> 92
<211> 192
<212> DNA

<213> Artificial Sequence

<400> 92

acgagcttgc tcatgatgat catgggagag ttagaaccaa gtgaaggcaa gatcaaaca
60
tccggccgca tcagcttttg cagccaattc agttggatca tgcccgggtac catcaaggag
120
aacataatct tcggcgtcag ttacgacgag taccgctatc gctcgggtgat taaggcctgt
180
cagttggagg ag
192

<210> 93

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> PTM sequences

<400> 93

aaatatcatt ggtgtttctt atgatga
27

<210> 94

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide

<400> 94

ccaactagaa gaggacatct ccaagtttgc
30

<210> 95

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide

<400> 95

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<210> 96
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide

<400> 96
aaaatatcat ctttggtggt tcctatg
27

<210> 97
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide

<400> 97
ccaactagaa gaggacatct ccaagtt
27

<210> 98
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> 5' splice site

<400> 98
cgtttacagg taagtggatc c
21

<210> 99
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> 3' splice site

<400> 99
ctgcagggcg gcttcgtcta ataatgg
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<210> 100
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Sequence from trans-splicing domain

<400> 100
tactaactgg tacctcttct tttttttttg atatcctgca gggcggc
47

<210> 101
<211> 1584
<212> DNA
<213> Artificial Sequence

<220>
<223> CFTR PTM

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120
ccttctgttg attctgctga caatctatct gaaaaattgg aaagagaatg ggatagagag
180
ctggcttcaa agaaaaatcc taaactcatt aatgcccttc ggcgatgttt tttctggaga
240
tttatgttct atggaatctt tttatattta ggggaagtca ccaaagcagt acagcctctc
300
ttactgggaa gaatcatagc ttcctatgac ccggataaca aggaggaacg ctctatcgcg
360
atztatctag gcataggctt atgccttctc tttattgtga ggacactgct cctacacca
420
gccatttttg gccttcatca cattggaatg cagatgagaa tagctatgtt tagtttgatt
480
tataagaaga ctttaaagct gtcaagccgt gttctagata aaataagtat tggacaactt
540
gttagtctcc tttccaacaa cctgaacaaa tttgatgaag gacttgcatt ggcacatttc
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780
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840
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 1020
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 1200
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 1260
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 1320
 ctgaaagata ttaatttcaa gatagaaaga ggacagttgt tggcggttgc tggatccact
 1380
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 1440
 aagatcaaac attccggccg catcagcttt tgcagccaat tcagttggat catgcccgtt
 1500
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 1560
 attaaggcct gtcagttgga ggag
 1584

<210> 102

<211> 323

<212> DNA

<213> Artificial Sequence

<220>

<223> trans-splicing domain of CFTR PTM

<400> 102

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 ggtcaaaaag ttttcacata atttcttacc tcttcttgaa ttcatgcttt gatgacgctt
 120
 ctgtatctat attcatcatt ggaaacacca atgatatttt ctttaatggt gcctggcata
 180
 atcctggaaa actgataaca caatgaaatt cttccactgt gcttaatttt accctctgaa
 240
 ttctccattt ctcccataat catcattaca actgaactct ggaaataaaa cccatcatta
 300
 ttaactcatt atcaaatacac gct

323

<210> 103
<211> 165
<212> DNA
<213> Artificial Sequence

<220>
<223> PTM binding domain

<400> 103
gctagcaata atgacgaagc cgcccctcac gctcaggatt cacttgccctc caattatcat
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cctaagcaga agtgtatatt cttatttgta aagattctat taactcattt gattcaaaat
120
atttaaaata cttcctgttt cacctactct gctatgcacc cgcg
165

<210> 104
<211> 225
<212> DNA
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<220>
<223> trans-splicing domain of CFTR PTM

<400> 104
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gcagaagtgt atattcttat ttgtaaagat tctattaact catttgattc aaaatattta
120
aaatacttcc tgtttcacct actctgctat gcacccgcgg aacattatta taacgttgct
180
cgaatactaa ctggtacctc ttcttttttt tttgatatcc tgcag
225

<210> 105
<211> 3069
<212> DNA
<213> Artificial Sequence

<220>
<223> CFTR PTM sequence

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120
aatatcatct ttggtgtttc ctatgatgaa tatagataca gaagcgtcat caaagcatgc
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caactagaag aggacatctc caagtttgca gagaaagaca atatagttct tggagaaggt
240
ggaatcacac tgagtggagg tcaacgagca agaatttctt tagcaagagc agtatacaaa
300
gatgctgatt tgtattttatt agactctcct tttggatacc tagatgtttt aacagaaaaa
360
gaaatatttg aaagctgtgt ctgtaaactg atggctaaca aaactaggat tttggtcact
420
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480
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660
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720
atcaactcta tacgaaaatt ttccattgtg caaaagactc ccttacaat gaatggcatc
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1560
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3000

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3060

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3069